ABSTRACT

A honeycomb body, which is composed in such a manner that a strip of corrugated foil made of heat-resistant stainless steel containing aluminum and a strip of flat foil made of stainless steel are alternately wound or laminated on each other, is incorporated into an outer cylinder made of metal and integrated into one body by means of diffusion bonding, so that a diffusion bonded metallic catalyst carrier can be formed. Surface roughness of the strip of foil after the completion of diffusion bonding is 0.001 to 2.0 µm when it is expressed by center line average height Ra, and no sintered bridges are formed at both end portions of the diffusion bonded section in the longitudinal direction. The catalyst carrier is manufactured in a condition so that λb, which is defined by

$$\lambda b = 6.8 \times 10^{-12} \times \delta f^{-1} \times F^{1/2} \times Ra^{-1/2} \times T^{1/4} \times$$
$$\exp(15000/T) \times b^{1/2},$$

can be in a range from 8 to 20 where thickness of the strip of foil is δf (m), average roughness of the foil surface is Ra (m), back tension in the case of winding is F (kgf), contact width of the piece of flat foil with the piece of corrugated foil is b (m), heat treatment temperature is T (K), and degree of vacuum is Pout (Pa), under the condition that $7.52 \times 10^9 \times \exp(-35000/T) \geq 8 \times$ Pout.